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DOD ENERGY FACTS & STATS

Operational Energy Use:

- According to the Center for Naval Analysis, the Marine Expeditionary Force in Iraq in 2003 burned through 90% of its ground fuel just to deliver and protect the remaining 10% to be used for operations.

- The Battlefield Paradox: "Fuel that is transported at great risk, great cost in lives and money, and substantial diversion of combat assets for convoy protection, is burned in generator set to produce electricity that is, in turn, used to air condition un-insulated and even unoccupied tents."

- In the race to Baghdad in 2003, the 3ID was forced to delay or risk outrunning its supply lines. During the opening weeks of OEF, debate centered around the quandary of supplying fuel and supplies to troops in a landlocked nation, surrounded by treacherous mountains and lacking basic infrastructure.

- All systems we require to sustain our military's presence abroad – from provision of food stocks to major weapon systems and ancillary support operations – require a steady supply of fuel.

- In 2008, the Department supplied more than 68 million gallons of fuel a month to forces in Iraq and Afghanistan. In June 2008 alone, we lost 220,000 gallons of fuel to attacks and other incidents – nearly 25 truckloads per month.

- The Army's HMMWV gets 4 mpg; Strykers 2 mpg; and the Abrams Tanks 0.6 mpg.

- A 2007 report by the Army Environmental Policy Institute found that nearly 17 full-up convoys were required every day to supply both theaters with the 590 million gallons of fuel it required that year.

- The largest portion of fossil fuel used by DOD is in the form of aviation fuel. (Kristine Blackwell, CRS, 2007)

- According to the US Defense Energy Support Center Fact Book 2004, in Fiscal Year 2004, the US military fuel consumption increased to 144 million barrels. This is about 40 million barrels more than the average peacetime military usage.

- By the way, 144 million barrels makes 395 000 barrels per day, almost as much as daily energy consumption of Greece.

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Installation Energy Use:

- DOD installations constitute roughly 25% of all DOD energy consumption.

- In 2008, the Air Force spent over $9 Billion on fuel; 84% of which went towards aviation fuel.

- Net-Zero Plus Initiative at the National Training Center (NTC), Fort Irwin, California. NTC is currently exploring the feasibility of removing their facilities completely from the electric grid and could have the potential to sell "green" energy back to the California grid. The Army has named Fort Irwin as a Net-Zero Plus Installation.

National Security:

- The nation's top oil suppliers – Canada, Mexico, Venezuela, Saudi Arabia, Nigeria, Iraq, Algeria, Angola, Russia, and the United Arab Emirates – will increasingly leverage our oil dependence against us.

- As energy becomes increasingly expensive and less available, our dependence on oil – especially from international suppliers, will have tremendous national security impacts.

Saving Lives:

- In 2007, 170 servicemembers lost their lives in attacks on fuel convoys. By reducing fuel consumption by just 10% across only its Stryker BCTs the Army estimates it would save 35-70 lives.

General Facts:

- The DOD is the single largest consumer of energy in the world, using roughly 330,000 barrels of oil per day.

- The U.S. consumes 7 billion barrels of oil a year, importing 60%, or $400 billion, with much of that from unfriendly countries. Our appetite for oil has serious implications on national security.

- The Navy is the second largest consumer of DOD energy. Its 284 ships and more than 3,700 aircraft consume 34.5 million barrels of oil per year.

- In fiscal year (FY) 2007, The DoD's total energy costs exceeded $13 billion, and an additional $5 billion was requested in FY 2008 to cover increased fuel costs.

- In 2001, a Defense Science Board (DSB) task force estimated the minimum cost of delivering over-land fuel in a combat zone to be $15 per gallon without including force protection, and the cost of delivering a gallon of fuel through an airborne tanker at $26 (excluding the cost of buying the aircraft). These estimates were based on a commodity price at the time of less than ninety cents per gallon for fuel.

- In 2006, the JASON* Defense advisory group estimated the cost of delivering a gallon of fuel via an airborne tanker, including a small proportion of the cost of the aircraft, at approximately $42 per gallon. The term coined to capture this more realistic cost of delivered fuel in theater is fully burdened cost of fuel (FBCF).

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Legislation:

- Executive Order 13423 sets certain goals and previously passed legislation requires additional procurement and use of alternative fuels, but there is no current requirement for stated petroleum reduction.

DOD Initiatives:

- The Power Surety Task Force and the Army's Rapid Equipping Force are demonstrating spray foam insulation (see Figure 2) and a solar power and storage system in Fort Belvoir housing. The Fort Belvoir demonstration includes a "control" case (with no new energy technologies) and will test the effectiveness of several technologies in three additional houses, each with successively more energy technologies.

- In an effort to demonstrate the operational efficacy of demand reduction coupled with alternative/renewable power, the PSTF and the NTC installed energy efficient structures (domes, spray foam insulation, renewable power generator, and efficient heating, ventilating, and air conditioning systems) in the training area (see Figure 4). These structures demonstrate a holistic approach that can provide an estimated energy savings of about 60%.

- The resulting energy savings of 40-75% led Multi-National Force Iraq to award a $95 million contract to insulate nine million square feet of temporary structures. Based on extrapolated data from previous demonstrations, the additional nine million square feet of insulated temporary structures could save more than 77,000 gallons of fuel per day in theater, equivalent to about 13 truckloads of fuel, with associated cost savings of over $300,000 per day at $4 per gallon (not including the military logistics and force protection saved from the demand reduction).

- In December 2007, the Air Force commissioned the largest photovoltaic solar array in the Americas (14.2 megawatts) at Nellis Air Force Base (see Figure 5). This supports about one fourth of the base's energy usage per day and has an estimated annual cost savings of $1 million.

- The Air Force APTO is working to integrate a waste-to-energy system at Eielson Air Force Base, Alaska (see Figure 8). This system will be an advanced gasification-based core technology with the capacity to convert 10 to 50 tons per day of a wide variety of waste materials into 1 megawatt of clean electricity, to be used on-site by the base, thereby reducing the amount of electricity purchased from the local grid.

- In FY 2007, the DOD reduced energy usage by over 10% from the 2003 baseline and almost 12% of the electricity was generated from renewable energy sources. (DOD Energy Security Task Force, 2007)

- A number of renewable energy installations have already become operational in Iraq. Checkpoints, health clinics, and street lights, primarily in Baghdad and Fallujah, are powered by small solar arrays enabling them to remain operational, even while the remainder of Iraq depends upon a sporadic ad hoc power grid.